Date: November 22, 2000

To: DWSE Staff

Through: Robert W. Hicks, Acting Director
Office of Water Programs

Robert Taylor, P. E., Director
Division of Water Supply Engineering

From: G. W. Peaks, P. E., Technical Services Administrator
Division of Water Supply Engineering

Subject: Technical Assistance - Code of Virginia – MTBE

Reference WM 807

On April 9, 2000 Chapter 1004 § 15.2-2144 of the Code of Virginia, related to inspection of public water supply was amended and reenacted. The section read as follows:

Be it enacted by the General Assembly of Virginia

1. That § 15.2-2144 of the Code of Virginia is amended and reenacted as follows:

§ 15.2-2144. Inspection of water supplies.

A. Every locality may regulate and inspect public and private water supplies; the production, preparation, transmission and distribution of water; and the sanitation of establishments, systems, facilities and equipment in or by means of which water is produced, prepared, transmitted and distributed. It may prevent the pollution of such water supplies; and, without liability to the owner thereof, may prevent the transmission or distribution of water when it is found to be polluted, adulterated, impure or dangerous.

B. Every public water supply operator shall at least quarterly test the public water supply for the presence of methyl tertiary-butyl ether (MTBE). The locality shall maintain a record of testing conducted pursuant to this subsection. If the results of any test conducted pursuant to this subsection indicate the presence of MTBE in excess of fifteen parts per billion, the locality shall immediately notify the Department of Environmental Quality and the Department of Health. The Division of Consolidated Laboratory Services shall maintain and make available, upon the request of any person, a list of laboratories, accredited under the provisions of the federal Safe Drinking Water Act (42 U.S.C. § 300f et seq.) to analyze samples, located throughout the Commonwealth that possess the technical expertise to analyze water samples for the presence of MTBE. Any lab seeking accreditation under the Safe Drinking water Act may contact the Division of Consolidated Laboratory Services. The Division of Consolidated Laboratory services shall establish a fee system to offset the cost of tests performed on behalf of public water supply operators.

2. That the Department of General Services' Division of Consolidated Laboratory Services shall report to the Governor and the General Assembly no later than November 1, 2000, on the estimated costs and personnel requirements for administering tests pursuant to this act.

This law appears to apply only to localities (county, city or town).

This law does not supercede any regulation held within the *Waterworks Regulations* nor does it invoke any action on the part of the Virginia Department of Health – Office of Water Programs – Division of Water Supply Engineering (DWSE) except to receive the notification from the waterworks that the sample was in excess of 15 ppb. These samples are not at the request of this office nor are they a special request from the waterworks regarding compliance with the *Waterworks Regulations*. Therefore, any waterworks specifically sampling for MTBE in accordance with this law must indicate to DCLS that it is taking this sample because of the law stated above. DCLS will charge DEQ for these samples analyses.

We will, however, inevitably receive calls from waterworks owners on this subject. We should limit our assistance to advising them of the above law. We will, however, continue to provide any assistance (i.e., treatment availability, health impact, etc.) to the waterworks that might have concerns about MTBE after analyses. The attached Fact Sheet entitled *MTBE in Drinking Water* may be of assistance

If an analysis report subject to this requirement is received provide a copy to Monte Waugh.

Attached is the July 11, 2000, DEQ guidance memorandum to its Regional Office staff for your information.

MJW/teh

MTBE in Drinking Water

What is MTBE?

MTBE (methyl tertiary-butyl ether) is a synthetic volatile organic chemical with no natural sources. It is used in gasoline throughout the United States as an octane booster to reduce carbon monoxide and ozone levels caused by auto emissions. MTBE started replacing the use of lead in gasoline in the late 1970's.

How does MTBE get into drinking water?

Releases of MTBE to ground and surface waters can occur through leaking storage tanks (both underground and above ground) and pipelines; spills at gasoline stations; disposal at landfill sites and dumps; emissions from marine engines into lakes and reservoirs; and to some extent from air deposition and storm water run-off.

Because of its solubility in water and resistance to decomposition, MTBE moves rapidly into groundwater. It generally migrates faster than other organic components of gasoline. As a result, MTBE can serve as an early indicator of potential gasoline contamination.

Has MTBE been detected in drinking water supplies?

Yes, MTBE has been detected in both public and private drinking water wells. The reported concentrations can vary widely, but generally are in the range of 1 to 10 parts per billion (ppb).

Is MTBE in drinking water harmful?

Based on the limited sampling data currently available, most concentrations at which MTBE has been found in drinking water sources are unlikely to cause adverse health effects according to the Environmental Protection Agency (EPA). However, there are no studies on the effects on humans of drinking MTBE-contaminated water. In animal studies, health effects occur at high levels of exposure. These animal studies indicate that MTBE has a low toxic potential, and maximum concentrations of MTBE in drinking water anticipated not to cause adverse health effects are determined to range from 700 to 14,000 ppb.

Because the animals were not exposed through drinking water, there are significant uncertainties about the degree of risk associated with human exposure to low concentrations typically found in drinking water.

How can people be protected?

MTBE has a very unpleasant taste and odor, and these properties can make contaminated drinking water unacceptable to the public. Humans vary widely in the concentrations they are able to detect. The odor and taste responses reported in observed individuals exposed to known concentrations of MTBE are in the 15-180 ppb range for odor and the 24-125 ppb range for taste. EPA has issued a drinking water advisory of 20 to 40 ppb on the basis of odor and taste

thresholds. Thus, protection of the water source from unpleasant taste and odor will also protect consumers from potential health effects.

How can MTBE be removed from drinking water?

In most cased it is difficult and expensive for individual homeowners to treat their own water. They should report any MTBE contamination to local water and health authorities.

Public water systems that detect MTBE at problematic concentrations can remove it using the same conventional treatment techniques that are used to clean up other contaminants originating from gasoline releases. Air stripping and granular activated carbon (GAC) are the common methods. However, because MTBE is more soluble in water and more resistant to biodegradation than other chemical constituents in gasoline, air stripping and GAC treatment requires additional optimization and must often be used together to remove it effectively.

What is being done nationally about the problem?

EPA, other federal and state agencies, and private groups are conducting research and developing a strategy for future actions. In 1999 An EPA Blue Ribbon Panel issued a report that advised that the use of MTBE should be reduced substantially and phased out over 4 years. In 2000 EPA announced that it wants to ban the use of MTBE. EPA intends to publish a secondary maximum contaminant level (SMCL) for MTBE based on taste and odor, and states will be strongly encouraged to adopt the SMCL. Also EPA is requiring all large public water systems and representative sample of small systems to monitor and report MTBE. That data will EPA the necessary information on which to base further requirements.

What is being done in Virginia about the problem?

For a number of years routine drinking water samples from public water systems, as required by state and federal regulations, have been analyzed for numerous volatile synthetic organic chemicals, including MTBE. Some MTBE has been detected at low levels, and in those cases additional sampling has been conducted and other steps have been taken to address the problem.

The Virginia General Assembly in 2000 enacted a new law that requires every public water supply operator to test for MTBE at least quarterly. If MTBE is detected in excess of 15 ppb, the locality must notify the Virginia Department of Environmental Quality (DEQ) and Department of Health (VDH). The Division of Consolidated Laboratory Services must maintain and make available a list of private laboratories accredited to analyze drinking water samples for the presence of MTBE.

While the new law does not specify the exact location of the samples, the Virginia Department of Health recommends that each entry point to the distribution system be sampled quarterly. This special sampling under this new law is in addition to any compliance sampling required by VDH under the existing Virginia Waterworks Regulations.

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER PROGRAMS COORDINATION
OFFICE OF SPILL RESPONSE AND REMEDIATION

Mail Address:
P.O. BOX 10009
Richmond, VA 23240

Location:
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Richmond, VA 23219

SUBJECT: Reporting MTBE Contamination from Public Water Supplies

TO: Dave Borton, Bruce Davidson, Dan Manweiler, Cynthia Sale, Mac Sterrett, Al Willett

FROM: Fred Cunningham

DATE: July 27, 2000

COPIES: Rick Anderson, Dallas Sizemore, Norm Auldridge, Larry Lawson, Andy Hagelin, Dave Chance, James Barnett, John Giese

As you know the General Assembly passed legislation that requires every public water supply operator to test public water supplies at least quarterly for the presence of Methyl tertiary-butyl ether (MTBE). This memorandum provides clarification on Regional Office implementation of the legislation.

Any questions regarding the public water supply testing requirements for MTBE should be referred to the Monte Waugh, Office of Water Programs, Department of Health.

Telephone #: 804-786-1758
Email: mwaugh@VDH.State.VA.US

Regional Offices should continue to address reports of MTBE contamination in accordance with the guidelines in the Storage Tank Program Technical Manual. The Technical Manual addresses guidance to determine the appropriate Release Response and Corrective Action and also contains sections on Alternate Water Supply Procedures and Responsible Person determination. Calls reporting MTBE contamination received at Central Office will be referred to the appropriate Regional Office for response.

As in the past, a Regional Office may find it necessary to require a nearby potential source(s) to perform a release investigation to determine the source of contamination. For complicated sites with no apparent RP the Region may authorize release investigation work under the State Lead contract to identify the source of contamination.

Should other problems arise as a result of reporting of MTBE contamination or if have any questions please let me know.